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## SPILL RESPONSE CONTACT SHEET

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USCG National Response Cer	nter	(800	0) 424-8802
In Oregon:			
	cy Management	(800	0) 452-0311
In Washington:			
Emergency Managemen	t Division	(800	<b>)) 258-5990</b>
Department of Ecology	Northwest Regional Office	(425	5) 649-7000
Department of Ecology	Southwest Regional Office	(360	0) 407-6300
-	_		
U.S. Coast Guard		Army Corps of Engineers	
National Response Center	(800) 424-8802	Hazards to Navigation	(206) 764-3400
Marine Safety Office Puget Sound:			
Watchstander	(206) 217-6232	Federal O.S.R.O./	
Safety Office	(206) 217-6232	State Approved Response Cor	itractors
Marine Safety Office Portland:	(502) 240 0201	All Out Indust. & Env. Services	(360) 414-8655
Watchstander Safety Office	(503) 240-9301 (503) 240-9379	Certified Cleaning Services, Inc.	(253) 536-5500
Pacific Strike Team	(415) 883-3311	Clean Sound Cooperative, Inc.	(425) 783-0908
District 13:	(413) 863-3311	Cowlitz Clean Sweep, Inc.	(360) 423-6316
MEP/drat	(206) 220-7210	FOSS Environmental	(800) 337-7455
Command Center	(206) 220-7001	Global Diving and Salvage	(206) 623-0621
Public Affairs	(206) 220-7237	Guardian Industrial Services, Inc.	(253) 536-0455
Vessel Traffic Service (VTS)	(206) 217-6050	Matrix Service, Inc. MSRC	(360) 676-4905 (425) 252-1300
,		National Response Corporation	(206) 340-2772
<b>Environmental Protection Age</b>	ency (EPA)	Tidewater Environmental	(503) 289-4274
Region 10 Spill Response	(206) 553-1263	&	(360) 695-8088
Washington Ops Office	(360) 753-9083		(300) 073 0000
Oregon Ops Office	(503) 326-3250	Washington State	
Idaho Ops Office	(208) 334-1450	Department of Ecology Headquarters	(360) 407-6900
RCRA/ CERCLA Hotline	(800) 424-9346	Southwest Region	(360) 407-6300
Public Affairs	(206) 553-1203	Northwest Region	(425) 649-7000
Central Region (509) 575-2		(509) 575-2490	
National Oceanic Atmosphere Administration		Eastern Region	(509) 456-2926
Scientific Support Coordination	(206) 526-6829		
Weather	(206) 526-6087	Department of Fish and Wildlife	(360) 534-8233
Canadian		Emergency Management Division	(360) 438-8639
Marine Emergency Ops/Vessel Traffic	(604) 666-6011	Emergency management Division	(800) 258-5990
Environmental Protection	(604) 666-6100		(000) 230-3770
B.C. Environment	(604) 356-7721	State Patrol	
	(,	Bellevue	(425) 455-7700
<b>Department of Interior</b>		Tacoma	(253) 536-6210
Environmental Affairs	(503) 231-6157	Bremerton	(360) 478-4646
	(503) 621-3682	Vancouver	(360) 260-6333
H.C. N		Oragon State	
U.S. Navy	(2.60) 47.6.2466	Oregon State Department of Environmental Quality	(503) 229-5733
Naval Shipyard	(360) 476-3466	Department of Environmental Quanty	(303) 449-3733
Naval Base Seattle	(360) 315-5440	Emergency Management	(503) 378-6377
Supervisor of Salvage	(202) 695-0231	Zamergenie j management	(800) 452-0311
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#### HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

#### Purpose of Geographic Response Plan (GRP)

This plan prioritizes resources to be protected and allows for immediate and proper action. By using this plan, the first responders to a spill can avoid the initial confusion that generally accompanies any spill.

Geographic Response Plans are used during the emergent phase of a spill which lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this lasts no more than 24 hours. The GRPs constitute the federal on-scene coordinators' and state on-scene coordinators' (Incident Commanders) "orders" during the emergent phase of the spill. During the project phase, the GRP will continue to be used, and the planned operation for the day will be found in the Incident Action Plan's Assignment List (ICS Form 204). The Assignment List is prepared in the Planning Section with input from natural resource trustees, the Incident Objectives (ICS Form 202), Operations Planning Worksheet (ICS Form 215), and Operations Section Chief.

#### **Strategy Selection**

Chapter 4 contains complete strategy descriptions in matrix form, response priorities, and strategy maps. The strategies depicted in Chapter 4 should be implemented as soon as possible, following the priority table in Section 2 with the "Potential Spill Origin" closest to the actual spill origin. These strategy deployment priorities may be modified by the Incident Commander(s) after reviewing on scene information, including: tides, currents, weather conditions, oil type, initial trajectories, etc.

## It is assumed that control and containment at the source is the number one priority of any

**response.** If, in the responder's best judgment, this type of response is infeasible then the priorities laid out in Chapter 4, Section 2 take precedence over containment and control.

It is important to note that strategies rely on the spill trajectory. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and booming location did not warrant action in that area. However, the priority tables should be followed until spill trajectory information becomes available, and modifications to the priority tables must be approved by the Incident Commander(s).

The strategies discussed in this GRP have been designed for use with persistent oils and may not be suitable for other petroleum or hazardous substance products. For hazardous substance spills, refer to the Northwest Area Contingency Plan, Chapter 7000.

#### **Standardized Response Language**

In order to avoid confusion in response terminology, this GRP uses standard National Interagency Incident Management System, Incident Command System (NIIMS, ICS) terminology and strategy names, which are defined in Appendix A, Table A-1 (e.g. diversion, containment, exclusion).

## GRAYS HARBOR Geographic Response Plan

Record of Changes

Date	Change Number	Summary of Changes	Initials of person making change
Undated	N/A	Original Release	N/A
January 31, 1995	1 <sup>st</sup> Change	Total replacement of document - includes revised Chapter 4 based on field verification.	
March 2003	2 <sup>nd</sup> Change	Update of Chapter 4 using GIS based maps, and new priority tables based on trajectory modeling.	D Davis

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# Grays Harbor, WA GEOGRAPHIC RESPONSE PLAN

#### 1. INTRODUCTION: SCOPE OF THIS PROJECT

Geographic Response Plans are intended to help the first responders to a spill avoid the initial confusion that generally accompanies any spill. This document serves as the federal and state on-scene-coordinators "orders" during a spill in the area covered by this GRP (see Chapter 3 for area covered). As such, it has been approved by the U.S. Coast Guard Marine Safety Office and the Washington State Department of Ecology Spills Program. Changes to this document are expected as more testing is conducted through drills, site visits, and actual use in spill situations. To submit comments, corrections, or suggestions please refer to Appendix C.

GRPs have been developed for the marine and inland waters of Washington, Oregon, and Idaho. They are prepared through the efforts and cooperation of the Washington Department of Ecology, Washington Department of Fish and Wildlife, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, the Environmental Protection Agency, tribes, other state and federal agencies, response organizations, and local emergency responders.

GRPs were developed through workshops involving federal, state, and local oil spill emergency response experts, response contractors, and representatives from tribes, industry, ports, environmental organizations, and pilots. Workshop participants identified resources which require protection, developed operational strategies, and pinpointed logistical support. A similar process has been used for major updates.

Following the workshops, the data gathered was processed and reproduced in the form of maps and matrices which appear in Chapters 4 through 6. The maps in Chapters 5 and 6 were generated using Canvas. Maps for Chapter 4 were generated using ArcView GIS. The matrices were created using MS Excel, and the balance of each GRP was produced using MS Word.

The first goal of a GRP was to identify, with the assistance of the Washington State Natural Resource Damage Assessment Team, resources needing protection; response resources (boom, boat ramps, vessels, etc.) needed, site access and staging, tribal and local response community contacts, and local conditions (e.g. physical features, hydrology, currents and tides, winds and climate) that may affect response strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Secondly, response strategies were developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount of boom necessary for implementation. The response strategies are then applied to Potential Spill Origins and trajectory modeling, and prioritized, taking into account factors such as resource sensitivity, feasibility, wind, and tidal conditions.

Draft strategy maps and matrices were sent out for review and consideration of strategy viability. Field verification was conducted for some strategies, and changes proposed by the participants were included in a semi-final draft, which was offered for final review to all interested parties and the participants of the field verification.

Finally, the general text of the GRP was compiled along with the site description, reference maps, and logistical support.

#### Items included in Logistical Support:

- Location of operations center for the central response organization;
- Local equipment and trained personnel;
- Local facilities and services and appropriate contacts for each;
- Site access & contacts;
- Staging areas;
- Helicopter and air support;
- Local experts;
- Volunteer organizations;
- Potential wildlife rehabilitation centers;
- Marinas, docks, piers, and boat ramps;
- Potential interim storage locations, permitting process;
- Damaged vessel safehavens;
- Vessel repairs & cleaning;
- Response times for bringing equipment in from other areas.

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#### 2. SITE DESCRIPTION

The Grays Harbor estuary, situated along the southern coast of Washington, includes 62,000 acres of water, tidal marsh, and partially developed shoreline. Grays Harbor is bounded by Montesano to the east, Point Brown at the north mouth, and Westhaven at the south mouth. It is Washington state's largest port outside of Puget Sound. The region is served by rail from the east, highway linkages from the east, south, and north, by a 5,000-foot-runway airport, and by a -30 feet mean lower low water navigation channel.<sup>1</sup>

Grays Harbor supports more than 50 species of fish, large populations of clams, oysters, and crabs, as well as 325 species of birds. The economies of six cities and towns depend upon shorefront industries such as ports, timber processing, fishing, and recreation.<sup>2</sup> Refer to Chapter 6 for detailed resource information.

#### 2.1. Physical Features

The 91 square mile estuary is approximately 13 miles at its widest point and narrows to less than 100 yards at its upper reach, nearly 32 miles from the estuary mouth. The estuary is a drowned portion of the Chehalis River Valley, and is continually filled in with riverborne sediments and oceanic materials. The predominant physical feature of the estuary is the vast amount of intertidal mud and sandflats.

The three corners of the estuary are defined by the mouth of the Chehalis River to the East, the North Bay, which receives waters from the Humptulips River, and the South Bay, into which the Elk and Johns Rivers flow. The four major islands of the estuary are Goose and Sand Islands (North Bay), Whitcomb Island (South Bay), and Rennie Island, near the mouth of the Chehalis.<sup>3</sup>

#### 2.2. Hydrology

Grays Harbor Estuary is fed by a 2,550 square mile drainage basin. Tributary rivers include the Chehalis, Hoquiam, Wishkah, Humptulips, Johns, and Elk River basins. The Chehalis is the largest and provides roughly 80% of the freshwater to the estuary. Net surface flow is seaward.

Due to winter storms, streams feeding Grays Harbor have higher winter flows and low summer flow. Seasonal freshwater input creates a range of salinity in the mid-portion of the estuary ranging from 5 parts per thousand during the winter to 20 parts per thousand in the summer.

The estuary contains numerous shallow channels created by ebb tide flows and river discharges. Historically, three main channels exist - the North, Middle, and South Channels. At present, the North Channel is dredged for navigation and the other two have shoaled to shallow depths.<sup>4</sup>

#### 2.3. Currents and Tides

The depth of Grays Harbor averages less than 20 feet. At the harbor entrance depths reach a maximum of 80 feet. The surface area varies from 91 square miles at mean higher high water to about 38 square miles at mean lower low water, resulting in 53 miles of intertidal lands.

Grays Harbor is subject to the North Pacific's diurnal tide system (two high tides and two low tides daily). The upper limit of tidal influence is Montesano, approximately 32 miles from the harbor entrance. On an annual basis, the mean daily tidal range is 10 feet in the Aberdeen-Hoquiam area.

Tides move slowly up the estuary; high tide occurs 29 minutes later at Aberdeen than at the harbor mouth. Maximum mean velocities in the upper harbor vary from about 3 feet per second (fps) during flood tide to about 4.5 fps during ebb tide.<sup>5</sup>

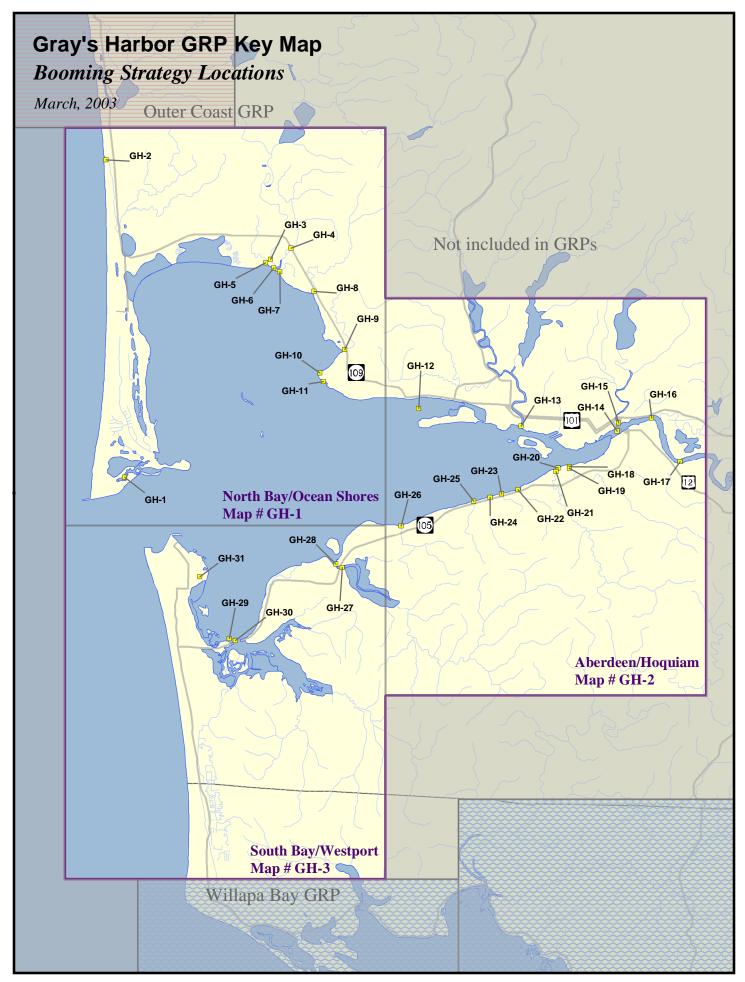
#### **2.4.** Winds

Winter winds, with gusts ranging from 35 to 50 mph, are from the south to southwest. Spring and summer winds are from the west to northwest and are steadier with fewer gusts, with velocities ranging from 15 to 20 mph.<sup>6</sup>

If oil is spilled offshore, prevailing winds will play a role in spill direction, depending on the season. In the winter, the predominant winds are from the south and the current is circulating north. If oil is spilled offshore south of Grays Harbor, and it enters the mouth, it can be expected affect North Bay. If the spill does not enter Grays Harbor, the North Coast shoreline will be vulnerable. In the summer, the predominant winds are from the north. The summer winds are persistent, but not as strong as the winter winds. Oil may enter Willapa Bay or Grays Harbor from the north and spread south. The increasingly variably nature of the winds in the Spring, Summer, and Fall may reduce the predictability of the spill direction once it enters Grays Harbor.

#### 2.5. Climate

The climate of the area is influenced by the Pacific Ocean. Grays Harbor has typically mild, dry summers and mild, wet, cloudy winters. August is the warmest month, with a mean average temperature of 70° F, while the coldest month, January, averages 34° F. Precipitation is high, increasing from about 80 inches near the estuary to over 220 inches in the higher reaches of the watershed.



# **APPENDICES**

# **Appendix A: Summary of Protection Techniques**

<b>Protection Techniques</b>	Description	Primary Logistical Requirements	Limitations
ONSHORE			
Beach Berms	A berm is constructed along the top of the mid-inter tidal zone from sediments excavated along the downgradient side. The berm should be covered with plastic or geo-textile sheeting to minimize wave erosion.	<ul> <li>Bulldozer/Motor grader -1</li> <li>Personnel - equipment operator &amp; 1 worker</li> <li>Misc plastic or geotextile sheeting</li> </ul>	<ul> <li>High wave energy</li> <li>Large tidal range</li> <li>Strong along shore currents</li> </ul>
Geotextiles	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone & fastened to the underlying logs or stakes placed in the ground.	<ul> <li>Geotextile - 3 m wide rolls</li> <li>Personnel - 5</li> <li>Misc stakes or tie-down cord</li> </ul>	<ul> <li>Low sloped shoreline</li> <li>High spring tides</li> <li>Large storms</li> </ul>
Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes & filling the space between with loose sorbents.	Per 30 meters of barrier  Wire mesh - 70 m x 2 m  Stakes - 20  Sorbents - 30 m <sup>2</sup> Personnel - 2  Misc fasteners, support lines, additional stakes, etc.	<ul> <li>Waves &gt; 25 cm</li> <li>Currents &gt; 0.5 m/s</li> <li>Tidal range &gt; 2 m</li> </ul>
Inlet Dams	A dam is constructed across the channel using local soil or beach sediments to exclude oil from entering channel.	<ul> <li>Loader - 1</li> <li>Personnel - equipment operator &amp; 1 worker or several workers w/shovels</li> </ul>	<ul> <li>Waves &gt; 25 cm</li> <li>Tidal range         exceeding dam         height</li> <li>Freshwater outflow</li> </ul>

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NEARSHORE			
Containment Booming	Boom is deployed in a "U" shape in front of the oncoming slick. The ends of the booms are anchored by work boats or drogues. The oil is contained within the "U" & prevented from reaching the shore.	For 150 meters Slick:  Boom - 280 m  Boats - 2  Personnel - boat crews & 4 boom tenders  Misc tow lines, drogues, connectors, etc.	<ul> <li>High winds</li> <li>Swells &gt; 2 m</li> <li>Breaking waves &gt; 50 cm</li> <li>Currents &gt; 1.0 m/s</li> </ul>
Exclusion Booming	Boom is deployed across or around sensitive areas & anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom  Boats - 1  Personnel - boat crew & 3 boom tenders  Misc 6 anchors, anchor line, buoys, etc.	<ul> <li>Currents &gt; 0.5 m/s</li> <li>Breaking waves &gt; 50 cm</li> <li>Water depth &gt; 20 m</li> </ul>
Deflection Booming	Boom is deployed from the shoreline away from the approaching slick & anchored or held in place with a work boat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s knot current  Boom - 60 m  Boats - 1  Personnel - boat crew + 3  Misc 3 anchors, line, buoys, recovery unit	<ul> <li>Currents &gt; 1.0 m/s</li> <li>Breaking waves &gt; 50 cm</li> </ul>
Diversion Booming	Boom is deployed from the shoreline at an angle towards the approaching slick & anchored or held in place with a work boat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s knot current  Boom - 60 m  boats - 1  Personnel - boat crew + 3  Misc 3 anchors, line, buoys, recovery unit	<ul> <li>Currents &gt; 1.0 m/s</li> <li>Breaking waves &gt; 50 cm</li> </ul>
Skimming	Self-propelled skimmers work back & forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed  Boom - 200 m  Boats - 2  Personnel - boat crews & 4 boom tenders  Misc tow lines, bridles, connectors, etc.  Portable  Hoses - 30 m discharge  Oil storage - 2000 liters	<ul> <li>High winds</li> <li>Swells &gt; 2 m</li> <li>Breaking waves &gt; 50 cm</li> <li>Currents &gt; 1.0 m/s</li> </ul>

Source is R. Miller of Clean Sound Cooperative.

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#### **Appendix B: Original Geographic Response Plan Contributors**

<u>Industry and Response Contractors</u>

<u>State Representatives (continued)</u>

Clean Sound Cooperative Washington State Department of Ecology

Crowley Marina Oregon Department of Environmental Quality

Foss Washington Department of Fish and Wildlife

Global Diving and Salvage Marine Oversight Board

Island Oil Spill Association Office of Marine Safety

Marine Spill Response Corporation Washington State Maritime Commission

OHM Washington Department of Natural Resources

Port Townsend Paper Co. Parks and Recreation Commission

Riedel Environmental Puget Sound Water Quality Authority

Wildlife Rapid Response Team, Inc.

<u>Other</u>

Coalition of Washington Ocean Fisherman Federal Representatives

U.S. Coast Guard Northwest Indian Fisheries Commission

Marine Safety Office

National Park Service

U.S. Department of Commerce

District Response Assist Team Point Defiance Aquarium

Pacific Strike Team

Seattle Aquarium

Environmental Protection Agency

U.S. Department of Interior <u>Environmental Consulting Firms</u>

Battelle Marine Sciences Lab

Beak Consultants Inc.

NOAA Evans-Hamilton Inc.

Hazardous Materials Response Division

Sanctuary and Reserves Division Genwest Systems Inc.

National Marine Fisheries Service Graham and Dunn

National Marine Mammal Laboratory
Fisheries Management Division

U.S. Army Corps of Engineers

Environmental Advocacy Groups

American Oceans Campaign

Bureau of Indian Affairs Washington Environmental Council

U.S. Fish and Wildlife Service Audubon Society

Trout Unlimited

**State Representatives** 

Wa. State Department of Community Development Sierra Club

Office of Archeology and Historic

Preservation People for Puget Sound

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#### Appendix C: Geographic Response Plan Comments/Corrections/Suggestions

If you have any questions regarding this document or find any errors, please notify one of the following agencies: or use tear out sheet (page C-3)

- Washington Department of Ecology, SPPR program, Natural Resources Unit
- USCG Marine Safety Office Puget Sound, Planning Department
- USCG Marine Safety Office Portland
- Oregon Department of Environmental Quality
- Idaho Emergency Response Commission
- Environmental Protection Agency Region 10

Phone Numbers:		Bulletin Board System (BBS):	:
Washington DOE	(360) 407-6972	USCG MSO Puget Sound	(206) 217-6216
USCG MSO Puget Sound	(206) 217-6213	USCG MSO Portland	(503) 240-9308
USCG MSO Portland	(503) 240-9307		
Oregon DEQ	(503) 229-5774		
Idaho ERC	(208) 334-3263		
EPA	(206) 553-6901		

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USCG MSO Portland mwilcox@pacnorwest.uscg.mil

USEPA sheldrake.beth@epamail.epa.gov

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Commanding Officer United States Coast Guard MSO Puget Sound Planning Department 1519 Alaskan Way South Seattle, WA 98134-1192	Washington Department Of Ecology SPPR Program Natural Resources Unit P.O. Box 47600 Olympia, WA 98504-7600	Office Of The Governor Idaho Emergency Response Commission 1109 Main Statehouse Boise, ID 83720-7000
Commanding Officer United States Coast Guard Planning Department MSO Portland 6767 North Basin Ave Portland, OR 97217-3992	Oregon Department of Environmental Quality Water Quality Division 811 SW Sixth Avenue Portland, OR 97204	Environmental Protection Agency Emergency Response Branch 1200 Sixth Avenue Seattle, WA 98101

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## Geographic Response Plan

## **Comments/Corrections/Suggestions**

#### Directions:

Fill in your name, address, agency, and phone number. Fill in the blanks regarding the location of information in the plan being commented on. Make comments in the space provided. Add extra sheets as necessary. Submit to: Dale Davis

Department of Ecology

Spills Program 300 Desmond Drive P.O. Box 47600

Olympia, WA 98504-7600 dald461@ecy.wa.gov

Name:	Title:	_ Agency:
Address:		
		Zip/Postal Code:
Phone: ()	E-Mail:	
GRP:	Page	Number:
Location on page (chapter, section, para 3):		
Comments:		

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Northwest Area Committee c/o Washington Department of Ecology Spills Program Natural Resources Unit - GRP Corrections P.O. Box 47600 Olympia, WA 98504-7600